

AT HOME ACTIVITY COLLECTION

INCLUDES LESSONS FROM EDIBLE SCHOOLYARD, LIFE LAB, SLOW FOOD, CBC.CA, ACTION FOR HEALTHY KIDS, KIDS GARDENING, WHOLE KIDS FOUNDATION, KIDS YOGA, COOKING WITH KIDS

COMPILED BY CITY GREEN

PART ONE

Let's Learn About Plants!

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Recommended Grade Level:

K-2

Season:

All

Indoors

Seasonal Gardening

Description:

Students will study what produce can be grown during the four seasons of the year in their region.

Students will play a matching game to review what they have learned about seasonal planting.

Background:

The seasons of the year offer different opportunities to grow produce in different parts of the country. Some regions can grow in the soil year round, while others need to grow indoors or in green houses for the winter.

Fruits and vegetables taste better when they're in season and often are more affordable. It's important to know what your growing region is and to research what can be grown at different times of the year.

The USDA has many helpful tips to help you know when to plant.

<http://planthardiness.ars.usda.gov/PHZMWeb/>.

Materials:

- Seasonal Gardening Chart
- Large butcher paper divided into four sections labeled Winter – Spring – Summer – Fall
- Construction paper
- Scissors
- Glue or tape
- Produce Matching Game Cards

Preparation:

Determine how many groups the students will be divided into. Make copies of the Seasonal Gardening Chart for each group.

Activity:

1. Ask the class what they know about the seasons of the year.
 - What are the four seasons?
 - How is the weather during each season in your region?
 - What foods do you eat in the four seasons?

2. Explain that the four seasons of the year affect our everyday lives, from the clothes we wear to the food we eat. Some fruits and vegetables can only be grown during certain seasons of the year, while some can be grown all year long. This is why fruits and vegetables are grown in different places since the four seasons are different across the country. It's important to know what fruits and vegetables are in season:
 - Gardeners can plan what they'll plant according to the season, so they can have a good harvest.
 - Fruits and vegetables that are in season normally taste better and are more affordable.
3. Divide students into groups and pass out the Seasonal Gardening Chart. Discuss what can be grown at different times of the year and allow students to share some of their favorite fruits and vegetables for each season.
4. Have students draw a fruit or vegetable from each season that they will share on the class poster "Eating through the Four Seasons." Display the poster in the classroom or in the hallway.
5. Have students play a matching game using the produce pictures and cards. Students will match the picture of the produce to the name. Students can also separate the matched cards by season.

Tying it Together:

1. Pick a fruit or vegetable and ask students when the best time of the year to eat it is.
2. Why should you consider seasons when planting your garden?
If you plant at the wrong time, your plants won't grow properly and you won't have a good harvest.

Special Care:

Seasonal fruits and vegetables could be sketched for students and they could color and cut them out for the "Seasons in the Garden" poster.

Digging Deeper:

Compare types of plants that grow better in different seasons. Look for patterns. Which fruits and vegetables grow in winter? Spring? Summer? Fall?

National Standards:

CCSS.ELA: Text types and purposes.

CCSS.ELA: Research to build and present knowledge.

NGSS: Interdependent relationships in ecosystems.

Lesson Extensions:

Health: Bring in examples of fruits and vegetables that are fresh, canned, frozen and dried. Have students sample a taste from each. Ask students to decide which they like the best by writing their name on a sticky note and placing it on the board under the columns fresh, canned, frozen or dried. Create a class graph from the responses. Explain why food is packaged in different ways and that foods cost more when they aren't in season.

Math: Compare total number of plants that can grow at each season. Compare number of days to harvest by using seed packets or growing guides. Use the following website as a reference:
<http://www.gardening.cornell.edu/homegardening/scene0391.html>

Science: Students create a planting guide for what they would like growing in their “dream garden” during each season.

Literature Connections:







An Apple Tree Through The Year by Claudia Schnieper

The Curious Garden by Peter Brown







Secrets of the Garden: Food Chains and Food Web in Our Backyard by Kathleen Weidner Zoehfeld and Priscilla Lamont

Seasonal Gardening Chart

Fall Crops







	Brussels Sprouts		Apples
	Pumpkin		Sweet Potato
	Pear		Butternut Squash

Winter Crops

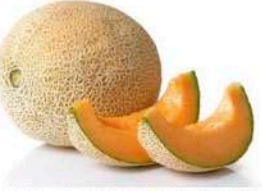





	Broccoli		Carrot
	Orange		Spinach
	Cauliflower		Kale

Seasonal Gardening Chart

Spring Crops

	Leeks		Fava Beans
	Lettuce		Asparagus
	Radish		Peas

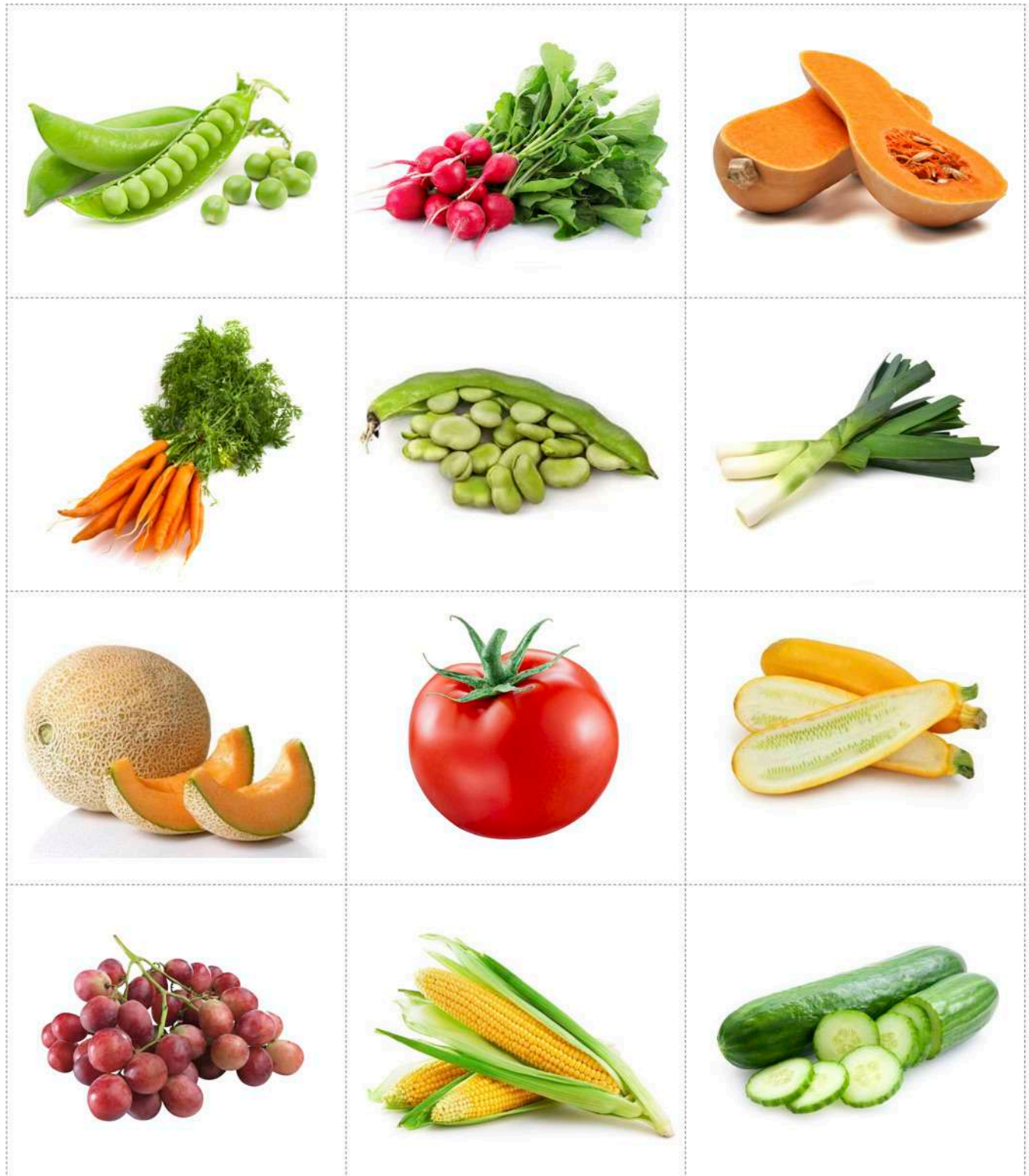
Summer Crops

	Melons		Grapes
	Cucumbers		Summer Squash
	Corn		Tomato

Produce Matching Game Cards



Produce Matching Game Cards



Produce Matching Game Cards

Pumpkin	Brussel Sprouts	Apple
Broccoli	Sweet Potato	Cauliflower
Lettuce	Orange	Pear
Kale	Spinach	Asparagus

Produce Matching Game Cards

Peas	Radish	Butternut Squash
Carrots	Fava Beans	Leeks
Melon	Tomato	Summer Squash
Grapes	Corn	Cucumber

Victory Gardens of WWI & WWII

PART 1: Research the Victory Garden Movement

Module 1: Students research the victory garden movement.

Procedure

1. Introduce the concept of victory gardens by sharing the primary source materials on the following pages. Explain that during WWI and WWII, millions of families plowed back yards, vacant lots, parks, baseball fields and school yards to grow gardens. With laborers fighting the war, farms struggled to produce enough food for the nation.
2. Discuss propaganda of WWI and WWII by displaying the victory garden posters. **ASK:** How did the federal government use propaganda to influence behavior? What can you infer about the relationship between Americans and the federal government during the early 1900s? How is that relationship different now?
3. Discuss the impact of food shortages on the country and the impact that victory gardens had on this shortage. The US Department of Agriculture estimated that 20 million gardens were planted and harvested 9-10 million tons of fresh vegetables.
4. **Internet Resource:** View a 20-minute video prepared by the US Department of Agriculture in 1945 to teach families how to grow a victory garden. Find the video, called "Victory Gardens" in the Prelinger Archives here: http://archive.org/details/victory_garden

MEETING TIME

40 minutes

OBJECTIVES

To understand the history of victory gardens
To connect the school garden to the past

SUPPLIES

Internet access
Primary source examples
Seed catalogs

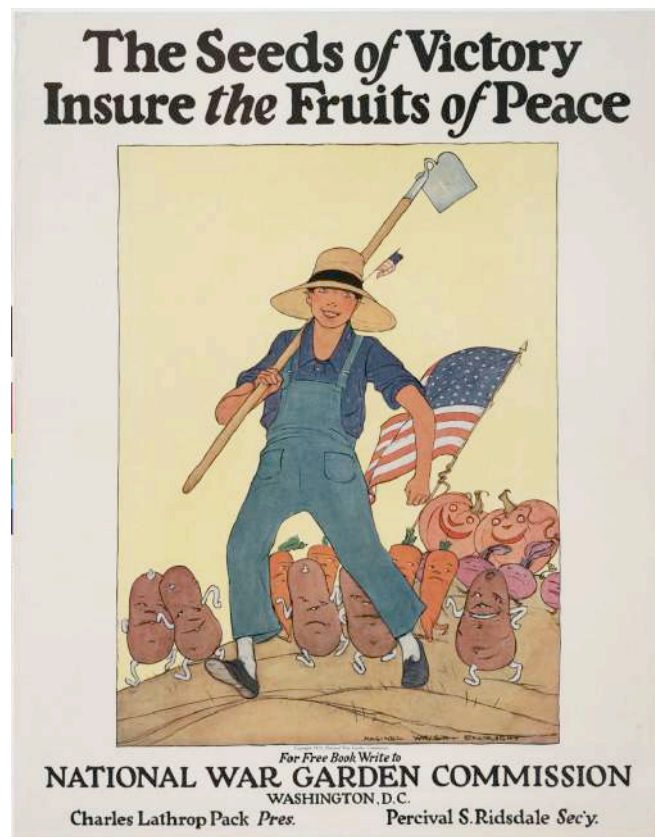
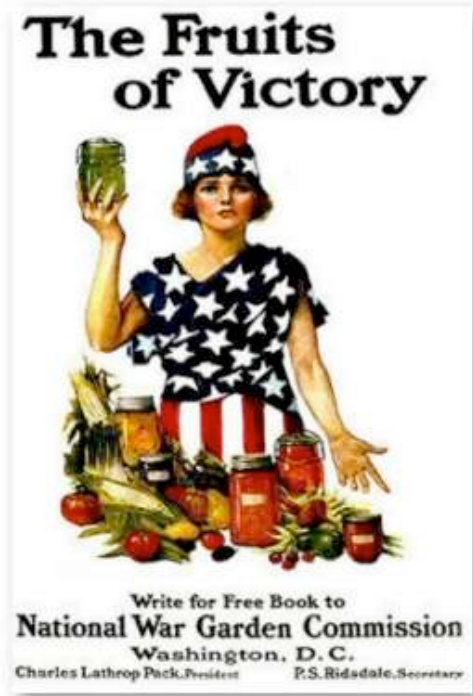
PORTFOLIO-BASED ASSESSMENT

Research the Victory Garden movement and write about the effect it had on the war effort and on American culture.



VICTORY GARDENS PRIMARY SOURCES

Module 1: Students research the victory garden movement.



VICTORY GARDENS PRIMARY SOURCES

Module 1: Students research the victory garden movement.



REMEMBER THESE IMPORTANT "DO'S"!

DO prepare your soil! YOU can't live without food—neither can a plant! You need air—so does a plant! (right down to its roots). So break that soil up. Make it rich with humus and fertilizer!



DO cultivate your garden! When you were young and tender you had a mother's care. If you want your plants to grow up and be nice to you, shower them with loving care (and cultivation).



DO use water! You won't be able to hear your plants when they're crying for water—but they'll be dying just the same! A good soaking rain, or get out the hose!



DO make a compost heap! It's nature's gift to gardeners and a lazy man's joy! It saves you the work of burning up or carting out waste material. And how the plants love it!



DO plan your garden on paper before you start! It will save you money, time and lots of work. It will keep you from making many mistakes. You are going to have a big family of vegetables this summer—better plan for them now!



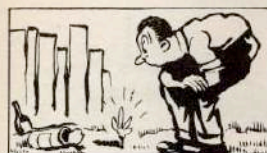
DO have a garden this summer! No vegetable ever tasted so good as one you raised yourself! Make your contribution towards helping to win the war! Get the biggest bargains in vegetables, health and new happiness—all practically for the sweat on your brow and the soil on your hands!



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REMEMBER THESE IMPORTANT "DON'T'S"!

DON'T think gardening is mysterious or difficult! It does take planning—it does take work—but a lot less than you may think it does. With a little luck and a little rain there is very little hard work left to do after you have prepared the soil and put your seeds in!



DON'T kill yourself! That sounds silly after just saying that gardening isn't difficult. It does take a certain amount of time. If you plan too much space and do not have the time to take care of it—well, that's silly!



DON'T fail to plan succession crops regardless of the size of your garden! If you put everything in all at once you will have weeks when you have more than you can use and other weeks when you won't have anything! Be Scotch—get two or three crops out of every row!



DON'T cheat! When you are turning over the soil this Spring, don't push your spade in half- or three-quarters of the way—push it in all the way! All crops need broken up soil. Carrots, parsnips, etc., won't half try if you don't make it easy for their roots to spread downward.



DON'T think you know more than the man who grew your seeds! You will find directions on the back of every packet of seeds. Read them carefully and follow them faithfully! No "expert" can give directions for planting the hundreds of varieties of seed available. The man who grows 'em knows best.



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Victory Gardens of WWI & WWII

PART 2: Plant the Victory Garden

Module 2: Students use their plan to plant their garden.

Procedure

1. **Plan the Victory Garden** Make a drawing of the garden and identify the crops you will include. Use seed catalogs to determine the length of harvest and ideal growing conditions. Consider the following:
 - Succession planting was encouraged by the federal government during the world wars. Spring crops begin in March and are replaced with summer/fall-harvest crops after harvest.
 - Crops that ripen in the summer will miss the school window. After harvesting your spring crop, plant a long-season crop that will harvest in the fall.
 - Victory Gardeners planned to preserve their crops for the winter. Good crops for making preserves are cucumbers or beans for pickling, berries for jelly, cabbage for kraut, tomatoes for sauce or catsup.
 - Some plants are prolific, providing large harvest per plant. These include pole beans, hot peppers, zucchinis, tomatoes, cucumbers, and okra. Cabbage, broccoli, carrots, and potatoes have a high yield for a small growing area. Have students refer to their planting plan and install the garden.
2. **Plant the Victory Garden** Use the garden plans to plant the garden.

MEETING TIME

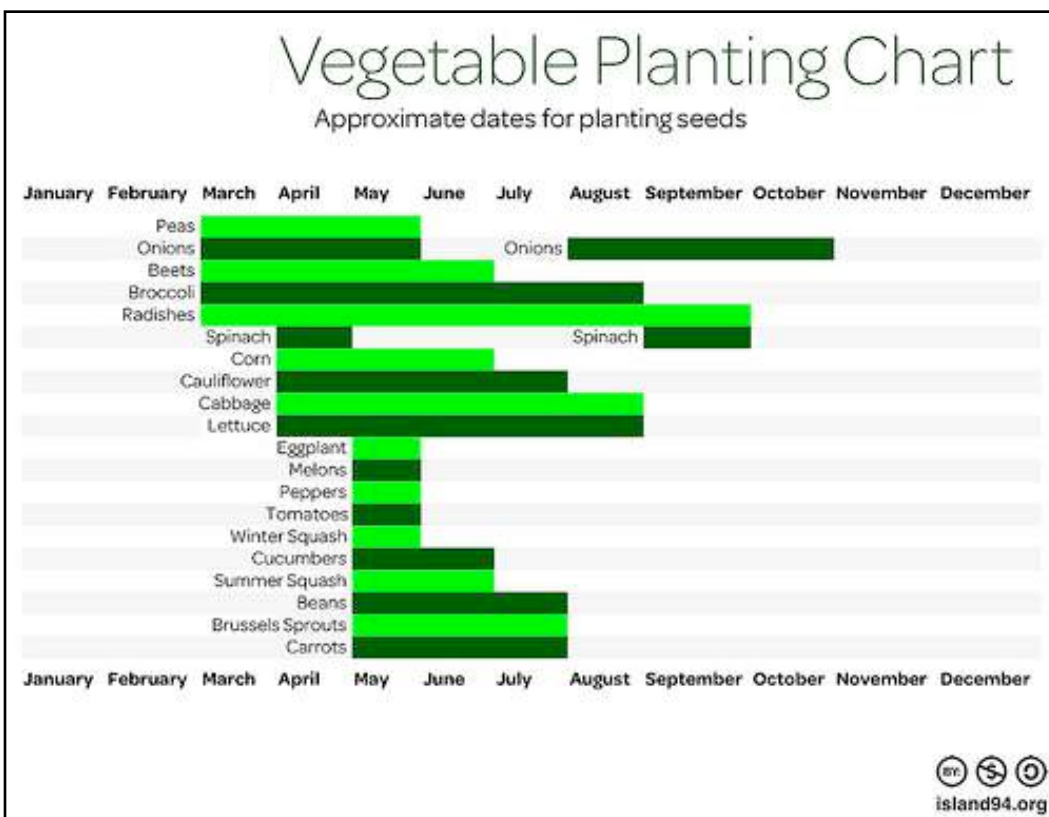
40 minutes

OBJECTIVES

To experience the planting process

SUPPLIES

Seeds, sets, and starts
Trowels
Watering hoses
Data collection tools



June Plant-Fall Harvest

Potatoes: Chop up well washed or organic potatoes into chunks, each containing an eye. Plant 4-6 inches below the soil in June. Harvest the potatoes after the vine has died in the fall.

Pumpkins: Don't try this unless your soil is super-rich with composted manure. Pumpkins are heavy feeders and will produce no female flowers without rich soil.

Popcorn: A late-season Indian corn or popcorn is ready to harvest in the fall.

Onions: Most take 110 days to mature. Start these from "sets" and plant them well enough apart so they can grow to the size of baseballs.

Carrots: Plant a long-season carrot for fall harvest. Thin these ruthlessly and weed early. Carrots like a clean bed.

Melons: Cantaloupe are surprisingly successful in the garden. Choose a long-season variety, and give them a little trellis to keep the fruit from rotting in the mud.

GARDEN DATA SHEET



Name _____ Date _____

Name or position of the garden bed _____

Soil

1. Soil temperature : _____

2. Moisture level of soil. Is it muddy, dry, soggy, or lightly moist?

3. List any soil amendments added to the garden before, during, or after planting. Be specific.

Starts:

4. Record the size of each variety of plant that was planted in the garden on the date of this data sheet.

Name of plant _____ Size of plant in inches: _____

Name of plant _____ Size of plant in inches: _____

Name of plant _____ Size of plant in inches: _____

Name of plant _____ Size of plant in inches: _____

Seeds:

5. Variety of seeds: _____

6. Number of seeds planted: _____

7. Depth of planting: _____

8. Distance between seeds: _____

9. Germination Rate: _____

10. Height: _____ Weight at harvest: _____



Victory Gardens of WWI & WWII

PART 3: Preserve the Victory Garden

Module 3: Students harvest their garden and preserve its produce.

Procedure

1. After harvesting the produce from the Victory Garden, have students prepare it for eating or preserve it. Explain that preserving food means placing it under conditions where it will not rot or spoil. Point out that people have been preserving food as long as agriculture has existed. Vinegar, salt, and sugar are hostile to bacteria. Heat kills bacteria and prepares food for long-term storage. Examples of preserving methods follow:
 - Drying—raisins, apples, plums, apricots
 - Pickling—preserving in vinegar; used for cucumbers and cabbage
 - Salting—used for meat and fish (salt cod)
 - Smoke—used for meat
 - Jams and jellies—preserve fruit in sugar
 - Oil—acts as a sealant keeping air away from the food.
2. Pickling: Many foods can be pickled in addition to cucumbers, such as, beans, beets, carrots, onions or beans. Have students harvest food from the garden. Then follow the recipe below to make refrigerator pickles. Have student partners complete the following tasks: wash and slice vegetables carefully; wash pint jars in hot soapy water; measure the spices and ingredients according to the recipe; prepare labels for each jar that identifies the ingredient list; prepare the vinegar and water solution; fill the jars with cut or whole vegetables; carefully pour the liquid into the filled jars; screw lids on the jars securely. Have students store the jars in the refrigerator. The pickles will be ready to eat after a week in the refrigerator.
3. If you are preserving food without a kitchen, set up a work area on tables outdoors. Have an electric cord and a special table set up for an electric tea kettle to boil water. Jars may be washed in a basin of warm sudsy water and dried on a clean table. Usually when food is put into jars and canned, it is treated to 10 minutes of boiling water, called a water bath. If this is impossible or impractical, have staff members process the jars outside of the class period. Or, have the foods kept in a refrigerator and eaten within 2 weeks of canning.

Recipes

Easy Sauerkraut

Cut cabbage thin and fill sterilized jars with shredded cabbage. Add to each jar: 1 teaspoon of salt, 1 teaspoon of sugar, and 1 teaspoon of vinegar. Fill the rest of the jar with boiling water. Place lids and rings on the jars and place in a water bath for 10 minutes. If the water in the jars is hot enough, most jars will seal if you invert the jar and allow the heat of the water to melt the rubber and seal the jar.

MEETING TIME

40 minutes

OBJECTIVES

To understand the process and purpose of preserving foods

SUPPLIES

Harvest baskets

Cooking ingredients for preserving vegetables

Electric skillet

Canning jars

Lids and rings for jars

PRESERVING THE HARVEST



Homemade Refrigerator Pickles

Ingredients

3 cups white vinegar
1 1/2 cups sugar
salt for sprinkling on cucumbers
2 tsp. salt (for brine solution)
1/2 tsp mustard seeds
1/2 tsp celery seed
1/8 tsp ground turmeric
4 small cucumbers
1 1/2 cups dill fronds



Directions

Line a rimmed baking sheet with paper towels and lightly sprinkle with coarse salt.

Slice 4 small cucumbers into thin slices. Arrange sliced cucumbers in a single layer on the prepared baking sheet, and sprinkle with salt. Cover with another layer of paper towels. Let stand 15 minutes, then pat dry.

In a medium saucepan (or electric skillet, if you are teaching in a classroom) combine vinegar, sugar, salt, mustard seed, turmeric and celery seed. Bring to a boil, stirring to dissolve sugar and salt.

Arrange cucumber slices and 1 1/2 cups fresh dill fronds in a jar.

Pour hot brine into the jar to completely cover cucumber and seal the jar. Refrigerate. You can eat these in as soon as 2 hours or up to a week from now. The flavor will grow stronger if you let them “marinate” for a few days.

From: WhatsCookingBlog.com

Tomato Catsup

Ingredients

2 pounds of fresh tomatoes cut and peeled OR one small can of tomato paste.
1/4 cup water
1/4 cup brown sugar
1/2 teaspoon salt
1/4 teaspoon cumin
1/4 teaspoon dry mustard
1/4 teaspoon cinnamon
1/8 teaspoon cloves
2 tablespoons cider vinegar

Directions

If you are using fresh tomatoes, peel them by blanching them in hot water.

After blanching, skins should peel off easily. Reduce the tomatoes by boiling for 30 minutes or until reduced to a thick paste.

Combine the paste with the remaining ingredients. Cover and refrigerate.

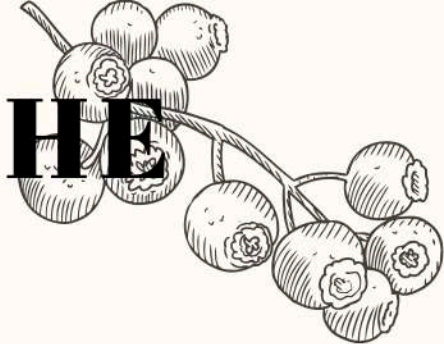
Jam or Jelly

Purchase a box of Sure-Jell Fruit pectin for homemade jams and jellies. Follow the instructions on the enclosed package for the type of fruit you plan to process.

Cooked jams are prepared in the following method: cleaned and mashed fruits are cooked with lemon juice and water. Pectin is added and mixture is brought to a rolling boil. Then sugar is added and stirred for one minute. Jam is transferred to jars and lids and rings are placed on the jars. Jars are processed for 10 minutes to seal. FOLLOW PACKAGE INSTRUCTIONS EXACTLY for successful jam and jelly.



FEASTS FOR THE BEASTS



PREP

10 mins

LESSON

30 mins x3

GRADE

K-3

TIME

YEAR ROUND

NGSS STANDARDS

K-LS1-1, 2-LS4-1, 3-LS4-2, 4-LS1-1

OBJECTIVE

Students will be able to identify insect and animal damage in the garden.

Students will understand the different diet preferences of animals in the garden

Students will try different vegetables.

BACKGROUND

The garden is a habitat for all different types of animals, from mammals to insects. These beneficial creatures are crucial for a garden's success, from pollinating flowers to spreading seeds. However, there are also many pests that can cause harm in the garden by damaging the plants.

If you learn how to look, you can see evidence of animals in the garden even if you can't find the animal itself. By looking at the type of damage, you can guess who was there! Birds often like to eat seeds and fruit, caterpillars and beetles often eat the leaves, aphids and squash bugs suck the sap from leaves, and mammals like deer and groundhogs often eat entire plants.

In this three part lesson, students will begin by looking around the garden for evidence of animal damage. They will then play games to learn about animal feeding preferences. Finally, they will have a Feast for the Beasts and mimic the animals feeding behaviors.

ESSENTIAL QUESTIONS

What animals are in the garden?

What clues can we observe in the garden that show animals were there?

Do all animals eat the same things in the garden?

VOCABULARY:

Pests: animals that damage plants by feeding on their leaves, roots, or stems

Beneficial Animals: animals that help plants grow (ex. by pollinating plants or spreading seeds)

Sap: the "blood of the plant" that has sugars and nutrients

Feeding Preference: what food an animal likes to eat

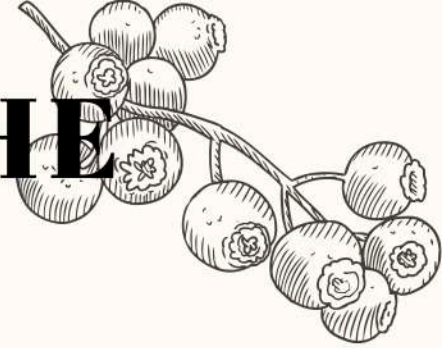
MATERIALS

One set of worksheets per group, scissors, a collection of vegetables, fruits and seeds (example: lettuce, tomatoes, sunflower seeds & blueberries)

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FEASTS FOR THE BEASTS



GARDENING ACTIVITY

1. Ask students about what different animals live in the garden and how they know they live there. Brainstorm different clues you might find in a garden that prove animals were there (i.e. insect damage on leaves, groundhog holes, bird nests, etc). Use the "Leaf Damage Sheet"
2. Have students walk around the garden and observe the plants, soil and nearby bushes. Do they see any animals? Do they see any clues that animals were there?
3. Have students brainstorm what the animals might eat in the garden.

MATCHING ACTIVITY

1. Split students into groups, and give each group the animal sheet. Have students cut out the different animals.
2. Play "Guess the Animal"
 - a. Read the description of animal's diet out loud.
 - b. Have each group choose one animal that they think matches the description. If they get it right, they get a point.
 - c. Repeat for all the animals.
3. Play the "Memory Game"
 - a. Have students cut out the diet sheets and put all the cards face down.
 - b. Going in a circle, students have to match the animal with its food preference. If they don't make a match, the card goes face-down again.



NUTRITION ACTIVITY (THE FEAST!)

1. After students are familiar with the diets of the different garden animals, begin the feast!
 - a. Have students make prediction statements about where they would find each animal in the garden.
 - i. For example, I predict that I will observe a groundhog near the lettuces and blueberries because groundhogs like vegetables and berries.
 - b. After they have prediction statements, hand out the "Who ate my veggies?" worksheet. Have the students place the animals where they think they would find them.
 - c. Bring out enough sunflower seeds, blueberries, lettuce and tomatoes (or foods of your choice) for each group.
 - d. Have students try to eat like the animals. How would a bite of lettuce by a caterpillar look different from a groundhog's bite? How much would each animal eat? Use the Leaf Damage sheet as a reference for insects.



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ground hog



slug



aphid



caterpillar



blue jay



cucumber beetle



rabbit



deer



cabbage moth



squash bug



gold finch



squirrel



ground hog

likes to eat most vegetables, including lettuce, beans, corn, and berries

slug

likes to eat soft leaves, including lettuce, flowers and seedlings

aphid

likes to suck out the sap from the leaves of beans, cabbage, melons, and potatoes

caterpillar

likes to eat the leaves and fruit vegetables like tomatoes, lettuce, corn, peas, and potatoes

blue jay

likes to eat the seeds of a plant, like grains, nuts and seeds

cucumber beetle

likes to eat the leaves of cucumber plants and other squash

rabbit

likes to eat vegetables, like beans, carrots, lettuce, peas and strawberries

deer

likes to most things, like beans, lettuce, cabbage, nuts and fruit

cabbage moth

likes to eat the leaves of cabbage plants

squash bug

likes to suck out the sap from squash plants

gold finch

likes to eat the seeds and berries of a plant, like sunflowers

squirrel

likes to eat seeds, nuts, insects and vegetables, like acorns and tomatoes

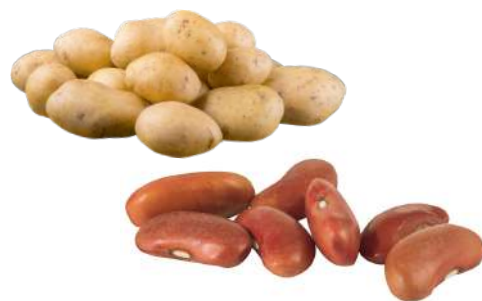
ground hog



slug



aphid



caterpillar



blue jay



cucumber beetle



rabbit



deer



cabbage moth



squash bug



gold finch

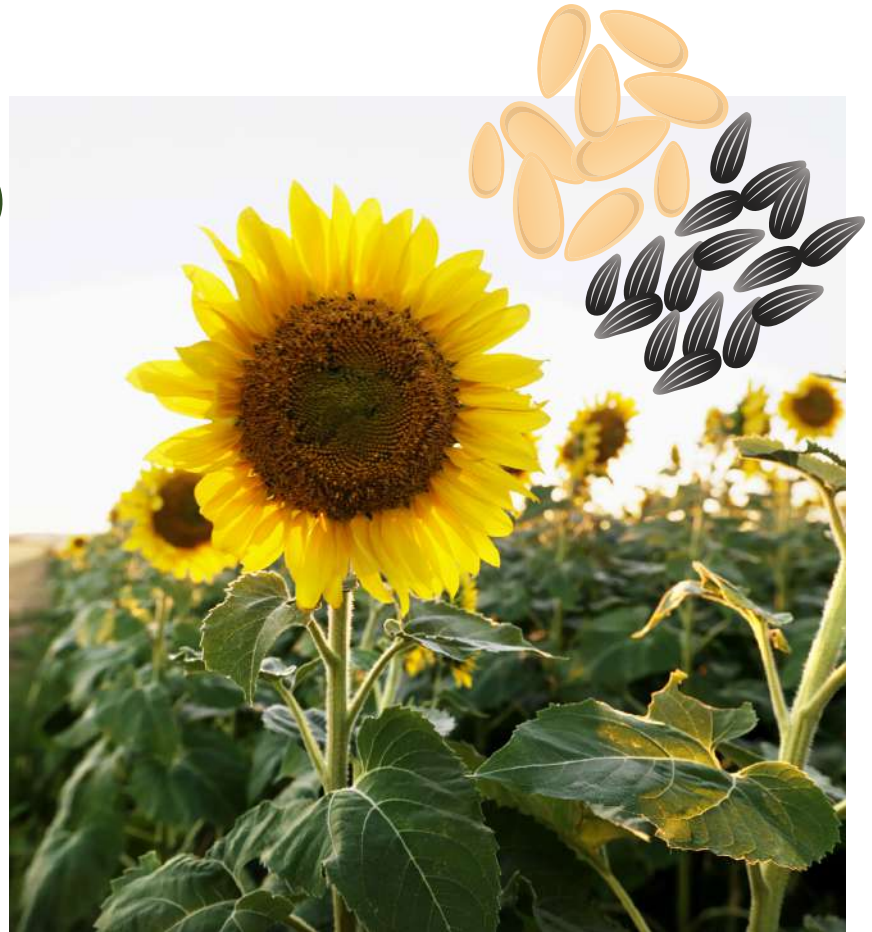


squirrel



WHO ATE MY VEGGIES?

ANIMAL FOOD PREFERENCES



WHO ATE MY LEAF?

Deformed leaves,
sucking damage



Aphids



Discolored leaves,
sucking damage



Thrips and mites



Chewed or
skeletonized leaves



Beetles, caterpillars,
and sawflies



Leaf galls (abnormal
plant growths)



Cynipid wasps, certain
aphids, psyllids, and mites



Leaf mines (white
patterns on leaves)



Beetle, fly, or moth larvae



Folded leaves



Caterpillars, tree
crickets, and spiders



Rolled leaves



Certain mites or
some caterpillars



Chewed leaves,
slime trails



Slugs and snails



READING LIST



Books we love for readers of all ages!

PRE-K to THIRD GRADE

- A Seed Is Sleepy *by Dianna Aston*
The Curious Garden *by Peter Brown*
Planting A Rainbow *by Lois Ehlert*
The Dandelion Seed *by Joseph Anthony*
Up in the Garden and Down
in the Dirt *by Kate Messner*
A Weed Is a Flower: The Life of George
Washington Carver *by Alike*
The Carrot Seed *by Ruth Krauss*
Tops and Bottoms *by Janet Stevens*
Lola Plants a Garden *by Anna McQuinn*
To Market, To Market *by Nikki McClure*

THIRD to FIFTH GRADE

- Poetrees *by Douglas Florian*
Garden To Table: A Kid's Guide To
Planting, Growing and Preparing Food
by Katherine Hengel
Fanny at Chez Panisse *by Alice Waters*
Linnea's Windowsill Garden
by Cristina Bjork
Seedfoks *by Paul Fleishman*
Out of the Dust *by Karen Hesse*
Black Potatoes *by Susan Campbell*
Bartolletti

SIXTH to EIGHTH GRADE

- The Omnivore's Dilemma: Young
Readers Edition *by Michael Pollan*
Botanicum (Welcome to the Museum)
by Katie Scott
The Secret Garden *by Frances*
Hodgson Burnett
Seed Savers: Treasure *by Sandra Smith*
You Grow Girl *by Gayla Trail*
Trees: A Rooted History Book
by Piotr Socha
Exploring Nature Activity Book for Kids
by Kim Andrews
Wishtree *by Katherine*
Applegate

HIGH SHOOOL

- The Botany of Desire *by Michael Pollan*
Founding Gardeners *by Andrea Wulf*
Braiding Sweetgrass *by Robin Wall*
Kimmerer
Farming While Black *by Leah Penniman*
Unseen City *by Nathanael Johnson*
Animal Vegetable Miracle
by Barbara Kingsolver
The One-Straw Revolution
by Masanobu
Fukuoka
Clueless in the Kitchen *by Evelyn Raab*